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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/599,950	11/13/2006	Peter Grochal	116047-150597	7128

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EXAMINER

LANGMAN, JONATHAN C

ART UNIT	PAPER NUMBER
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1794

MAIL DATE	DELIVERY MODE
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06/25/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/599,950	Applicant(s) GROCHAL, PETER	
	Examiner JONATHAN C. LANGMAN	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-47 is/are pending in the application.
- 4a) Of the above claim(s) 43-47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/30/2007 and 6/2/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 15-42 in the reply filed on June 1, 2009 is acknowledged.

Claims 43-47 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on June 1, 2009.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 15-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 15, the applicant states:

"...the coating material comprising:

A binding agent; **and**

At least one filler including:

Particles having a size and/or surface roughness of about 10
microns or less; **and**

A photocatalytically active agent; ...”

It is unclear if the coating composition requires three parts: a binder, filler, and photocatalytically active agent; or if the claim only requires two parts: a filler which is the photocatalytically active agent and a binder.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 15-23 and 30-40 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Watanabe et al. (US 6,337,129).

Regarding claims 15-18, 20, 30-33, and 36-38, Watanabe et al. teach a surface coating for coating facades and other building materials (col. 15, lines 41). The coating comprises a hydrophobic resin and a photocatalytic oxide (col. 11, lines 35-40). In addition the coating also comprises an inorganic oxide (col. 11, lines 54-60), wherein the inorganic oxide is preferably silica (col. 14, lines 4-12). The photocatalytic oxide comprises anatase titania (col. 12, lines 31-32 and col. 4, lines 46-47). Watanabe goes on to teach that the particle diameter of the photocatalytic oxide, and the inorganic oxide are both less than 0.1 microns (col. 14, lines 32-40).

It is expected that since Watanabe teaches the same binding agent, a hydrophobic resin, as instantly claimed, that the hydrophobic resin is capable of decomposing due at least in part by a photocatalytic action of the photocatalytically active agent, as presently claimed. Furthermore it is expected that the coating composition of Watanabe is capable of forming a microstructured, self cleaning surface that photocatalytically reduces by about 0.1 microns and by about 1 micron or more per year in response to external weathering, as well as the decomposition being equivalent to chalking level of 1 or less.

It has been held that where the claimed and prior art products are identical or substantially identical in structure or are produced by identical or a substantially identical processes, a prima facie case of either anticipation or obviousness will be considered to have been established over functional limitations that stem from the claimed structure. *In re Best*, 195 USPQ 430, 433 (CCPA 1977), *In re Spada*, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). The **prima facie** case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed products. *In re Best*, 195 USPQ 430, 433 (CCPA 1977).

A material and its properties are inseparable. Since Watanabe teaches the same materials and the same coating composition as instantly claimed, it is expected and inherent that the coating composition of Watanabe will possess the same properties as instantly claimed, i.e. chalking and photocatalytic reduction rates.

In regards to claim 19, the first composition of Watanabe is used to reject the instantly claimed rejection. Watanabe teaches a surface layer comprising a silicone

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resin, and a photocatalytically active agent (col. 4, lines 1-5) with a particle size of less than 10 microns (col. 7, lines 1-5). In this case the photocatalytically active agent of Watanabe reads on the instantly claimed filler.

In regards to claims 21-23, since Watanabe is silent to doping the photocatalytically active agent it is expected that the photocatalytically active agent comprises 100% TiO_2 .

Regarding claims 34 and 35, Watanabe teaches that the silica can be provided as a sol. It is expected that the gel will crosslink during the setting of the coating composition and therefore will form a sol gel material. Furthermore, silica as a material is taught by Watanabe, and is claimed by the applicant. The product by process steps of obtaining the silica sol, are not given patentable weight since they do not provide a patentable distinction of structural difference between the silica of Watanabe and the silica instantly claimed.

Regarding claims 39, the applicant has not defined what "excess" means. Excess compared to what? Watanabe teaches a filler so therefore it reads on the claim. Furthermore, Watanabe teaches that the filler is present at the surface of the coating in an exposed state (col. 12, lines 29-30 and col. 17, lines 20-30), which is construed by the examiner to be an excess amount of filler.

Regarding claims 40 and 41, Watanabe teaches adding additives to the coating compositions including accelerators, surfactants, thickeners and water (col. 10, lines 50-65).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15-20, 24, 30-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murasawa et al. (US 5,547,823) in view of Escaffre et al. (WO99/51345) wherein (US 2004/0204314) is used as an English Equivalent.

Regarding claims 15-20 and 31-38, Murasawa et al. teach a coating composition comprising a less degradative adhesive and photocatalyst particles (col. 5, lines 25-42). The photocatalyst particles comprise oxides of iron, titanium, zinc, tungsten and the like, wherein titanium oxide is preferred (col. 3, lines 55-67). The less degradative adhesive comprises acryl modified silicone resin (col. 3, lines 50-55), a hydrophobic resin comprising silicone. Murasawa also teaches that the coating includes an adsorbent material which comprises silica sol gels (col. 4, lines 65-col. 5, lines 5). These silica sol gels read on the instantly claimed filler material.

Murasawa et al. do not teach the particle size of the photocatalytic particles (TiO_2) or the particle size of the adsorbent material (silica sol gel).

Escaffre teach a photocatalytic composition comprising adsorbents and photocatalytic particles. The adsorbent is preferably silica sol gel and the photocatalytic particles are preferably TiO_2 , both with particle sizes of less than 0.03 microns (US: ([0023]-[0031]) and FR (pg 4 lines 29- pg 5 line25). Escaffre teach that by using the

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colloidal dispersion of silica sol gel in these diameter ranges makes it possible to significantly improve the degree of adsorption of the polluting substances on the photocatalyzing agent as well as the efficiency of the photocatalysis.

It would have been obvious to a person having ordinary skill in the art at the time the present invention was made to use the particle sizes taught by Escaffre for the respective particles in the coating composition of Murasawa; as Escaffre has shown that these are known particles sizes and provide effective results as a coating and results in increased efficiency of photocatalysis. It has been shown that combining prior art elements according to known methods to yield predictable results is a basis for supporting a conclusion of obviousness (MPEP 2141 [R-6], KSR International Co. v. Teleflex Inc. (KSR), 550 U.S. ___, 82 USPQ2d 1385 (2007)). Therefore using known particle sizes as taught by Escaffre for the particles of Murasawa would have been obvious to a routineer to obtain predictable results, i.e. an effective coating.

It is expected that since the combination of Murasawa et al. and Escaffre et al. teach the same binding agent, a hydrophobic resin, as instantly claimed, that the hydrophobic resin is capable of decomposing due at least in part by a photocatalytic action of the photocatalytically active agent. Furthermore since Murasawa and Escaffre teach the same coating composition and the same particle sizes that the coating is capable of forming a microstructured, self cleaning surface that photocatalytically reduces by about 0.1 microns and by about 1 micron or more per year in response to external weathering, as well as the decomposition being equivalent to chalking level of 1 or less.

It has been held that where the claimed and prior art products are identical or substantially identical in structure or are produced by identical or a substantially identical processes, a prima facie case of either anticipation or obviousness will be considered to have been established over functional limitations that stem from the claimed structure. *In re Best*, 195 USPQ 430, 433 (CCPA 1977), *In re Spada*, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). The **prima facie** case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed products. *In re Best*, 195 USPQ 430, 433 (CCPA 1977).

A material and its properties are inseparable. Since Murasawa and Escaffre et al. teach the same materials and the same coating composition as instantly claimed, it is expected and inherent that the coating composition of Murasawa and Escaffre et al. will possess the same properties as instantly claimed, i.e. chalking and photocatalytic reduction rates.

Regarding claim 24, Murasawa teach that the Titania photocatalyst particles may be doped with oxides and halogenides of Fe, Co, Ni, Cu, Zn, Ru, Pd, Ag, Pt, and Au (col. 3, lines 60-col.4, lines 10).

Regarding claim 30, Murasawa do not specify which crystallinity of Titanium dioxide is used as the photocatalytic agent. Escaffre teach that anatase titanium dioxide is preferred. It would have been obvious to a person having ordinary skill in the art at the time the present invention was made to use anatase titanium dioxide for photocatalytic agent of Murasawa, as Escaffre has shown that this is a known and desired photocatalytic agent in the art. Simple substitution of one known element for

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another to obtain predictable results is sufficient to support a conclusion of obviousness (MPEP 2141 [R-6], KSR International Co. v. Teleflex Inc. (KSR), 550 U.S. ___, 82 USPQ2d 1385 (2007)). Therefore it would have been obvious to substitute anatase TiO_2 for the TiO_2 of Murasawa to obtain predictable results of photocatalytic activity.

Regarding claims 39 and 41, Murasawa teaches that the coating compositions may be formulated with solvents such as water, as well as crosslinking agents, dispersants, and fillers (col. 5, lines 25-45), thereby showing an “excess” of fillers.

Regarding claim 40, pigments are known in the art and would have been obvious to apply to the coating composition of Murasawa in order to obtain a desired coating color (see at least the abstract of JP2001-040291).

Claims 21-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US 6,337,129) as applied above to claims 15-23 and 30-40, in view of Chopin et al. (US 6,037,289).

Watanabe teaches a coating composition comprising photocatalytic particles of TiO_2 . Watanabe is silent to adding an additive to the TiO_2 particles.

Chopin et al. teach a coating comprising photocatalytic particles of Titanita. Chopin goes on to teach that in order to amplify the photocatalytic effect one can adding catalysts and additives to the TiO_2 particles (col. 4, lines 29-52). Chopin teaches coating titanium dioxide particles with oxides of Fe, Cu, Ru, Ce, Mo, Bi, Ta, Nb, Co, Ni,

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W, Sn, Zr, Ca, and Zn, in amounts of 0.01-20% compared to the titanium dioxide particles.

It would have been obvious to a person having ordinary skill in the art at the time the present invention was made to dope the titanium dioxide particles of Watanabe with the metal oxides in their respective amounts as taught by Chopin in order to increase the photocatalytic effect of the titanium dioxide particles. These obvious compositional ranges taught by Chopin overlap those compositional ranges set forth in instantly claims 21-29.

Claims 21-23 and 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murasawa et al. and Escaffre et al., as applied above, in view of Chopin et al. (US 6,037,289).

Murasawa teach a coating composition comprising titanium dioxide particles. Murasawa teach doping the particles with metal oxides and metal halogenides of those metals instantly claimed. Murasawa is silent to the compositional proportions of these catalysts to the photocatalytic particle.

Chopin et al. teach a coating comprising photocatalytic particles of Titanium dioxide. Chopin goes on to teach that in order to amplify the photocatalytic effect one can adding catalysts and additives to the TiO_2 particles (col. 4, lines 29-52). Chopin teaches coating titanium dioxide particles with oxides of Fe, Cu, Ru, Ce, Mo, Bi, Ta, Nb, Co, Ni, W, Sn, Zr, Ca, and Zn, in amounts of 0.01-20% compared to the titanium dioxide particles.

It would have been obvious to a person having ordinary skill in the art at the time the present invention was made to dope the titanium dioxide particles of Murasawa with the metal oxides in their respective amounts as taught by Chopin in order to increase the photocatalytic effect of the titanium dioxide particles. These obvious compositional ranges taught by Chopin overlap those compositional ranges set forth in instantly claims 21-29.

Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US 6,337,129), as applied to claims 15-23 and 30-40 above.

In regards to the composition set forth in claim 42, the solvent, preservative and water are negligible since they are less than certain amounts and may be zero. None of the other materials instantly claimed are given specific materials, and rather are just referred to as generic terms from the art. For purposes of rejecting the claim, the Examiner breaks down the instantly claimed composition as follows:

The two fillers are linked together, giving a total possible amount of 7-60%. In the embodiment shown in Figure 4, Watanabe teaches that the filler is present in a preferable amount of 5-55% (col. 14, lines 50-55).

The Photocatalytic agent and the pigment are linked together, since, in the art it is known that TiO_2 is a pigment, giving a total of 12-35% instantly claimed. Watanabe teaches that the photocatalytic agent, TiO_2 , is present in an amount of 1-80% and preferably 20-50% (col. 14, lines 50-55).

The hydrophibization agent is linked with the hydrophobic binding agent, giving a total amount of 12-38% hydrophobic binder. In view of the preferred embodiments of the above two components this leaves a hydrophobic binder in amounts of 0-75%. Watanabe further teaches that the amount of hydrophobic binder may be controlled as desired (col. 15, lines 1-10). It would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the amount of binder for the intended application, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

The remainder of the instantly claimed composition is a thickener of 0.1-1%, which the Examiner contends, for a routineer in the art, would have been an obvious addition, in the instantly claimed amounts, to the composition of Watanabe in order to obtain a desired consistency. The Examiner contends that a thickener in the instantly claimed amounts does not provide a patentable distinction over the layer taught by Watanabe..

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JONATHAN C. LANGMAN whose telephone number is (571)272-4811. The examiner can normally be reached on Mon-Thurs 8:00 am - 6:30 pm EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JCL

/Timothy M. Speer/
Primary Examiner, Art Unit 1794